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PROGRESS REPORT

of the

CONSUMER AND FOOD ECONOMICS RESEARCH DIVISION

MARKETING AND NUTRITION RESEARCH

July 1, 1970

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UNITED STATES DEPARTMENT OF AGRICULTURE

CONTENTS

	<u>Page</u>
Introduction	1
Food choices, habits, consumption, and use	4
Food composition, food budgets, and guidance for food programs ..	11
Use of family resources	15

Issued March 1971

Progress Report
of the
CONSUMER AND FOOD ECONOMICS RESEARCH DIVISION
Marketing and Nutrition Research

INTRODUCTION

The goals of research in this Division are to improve the dietary situation, the levels of living, and the home management practices of families in the United States. The research involves:

- Studies of the kinds, amounts, and costs of food consumed by different population groups, the food habits of individuals and the practices of families in the purchase and household use of various foods.
- Development and improvement of procedures for use and care of food in homes and institutions.
- Development of tables of the nutritive values of foods.
- Nutritional appraisal of diets and food supplies.
- Studies of the kinds, amounts, and costs of goods and services used for family living by households and of family practices in their management of financial and other resources.

On the basis of this and other research, guidance materials such as food budgets, dietary guides, and other aids are developed to help families obtain better diets and make the most advantageous use of their money and time resources. Research studies are also carried out to improve and backstop the food assistance programs of the Department.

Research results are interpreted for use in rural development and other Federal antipoverty programs by staff members who participate in a variety of inter-agency, interdepartmental and professional groups which are concerned with problems of low-income families and their solution.

Research findings are disseminated to the scientific public through technical publications; to teachers and other leaders concerned with helping families and consumers, through semitechnical reports; and to consumers themselves, through popular-type publications. Two periodicals issued regularly by the Division help to disseminate research findings or current information of concern to the groups reached--Nutrition Program News prepared for members of

State nutrition committees and other workers in nutrition programs; and Family Economics Review, servicing extension agents, teachers, and other professional workers interested in family and food economics and home management.

The program of the Consumer and Food Economics Research Division is carried out at Hyattsville and Beltsville, Maryland, and under contracts, cooperative agreements and grants with State Experiment Stations, universities and private research organizations. The present report summarizes the current program and progress during the period April 1, 1969-June 30, 1970.

Four examples of recent progress in the Division's research program follow:

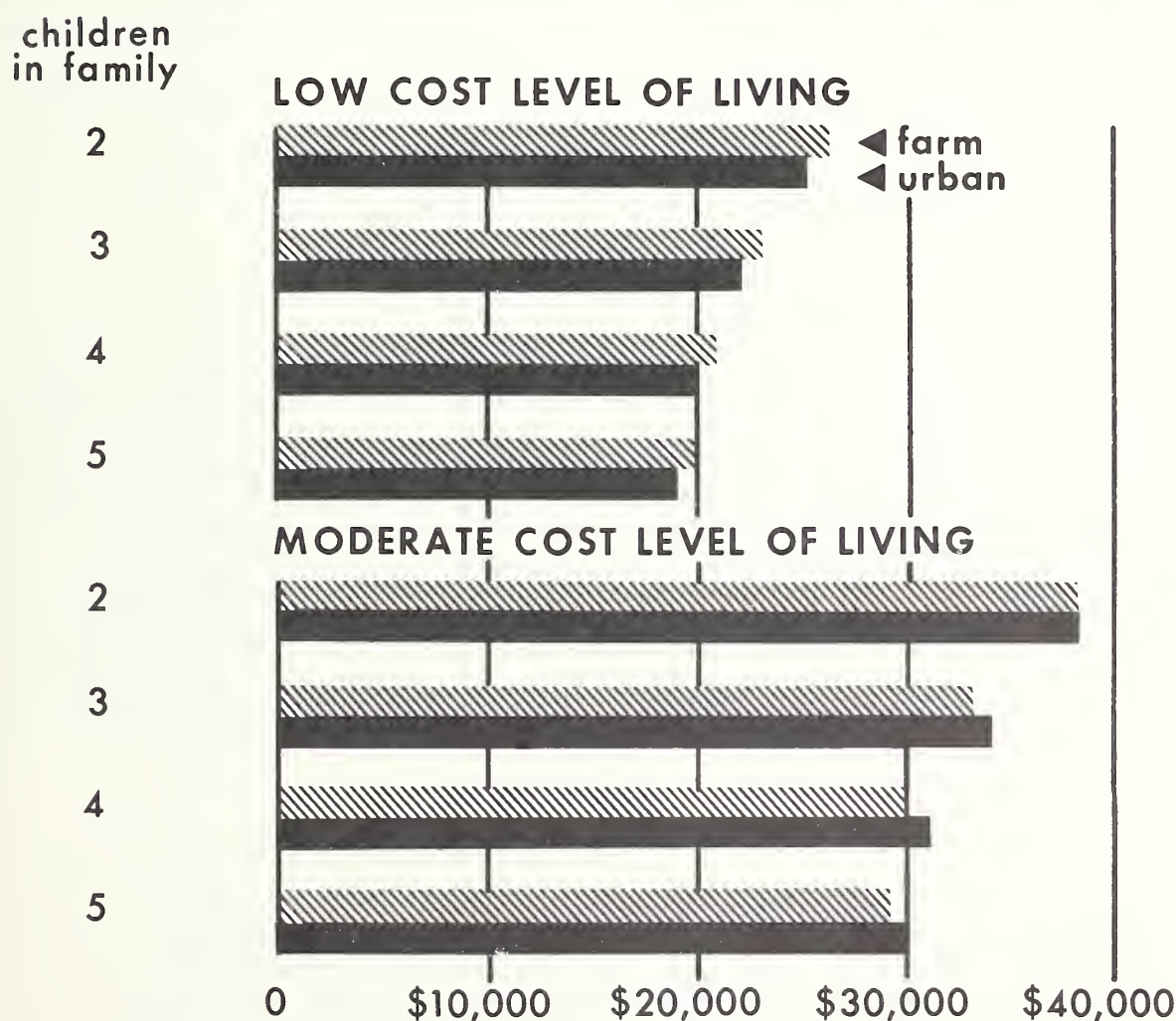
The cost of raising a child. Estimates were developed of the costs of raising a child for farm and urban families in the South and in the North Central region. Contrary to the widely held belief that living is cheap on the farm, costs for the farm child at comparable levels of living are sometimes higher and never substantially less than for the urban child. In the South, for example, the cost for raising a farm child from birth to 18 years of age in a three-child family at a moderate-cost level is about \$33,000 (in 1969 prices). This is 3 percent below the cost for a comparable urban child. At a low-cost level of family spending, cost for the farm child in the South is about \$23,000, which is 5 percent above the urban cost. These estimates of the costs of raising a child were made for low and moderate levels of family spending using data from the survey of consumer expenditures in 1960-61. The estimates give policy-makers a measure of the real difference in levels of living of farm and urban populations. They also emphasize the continued need for programs designed to raise the incomes of farm people.

Money value of food and diet adequacy. The quality of household diets is closely related to the money value of food consumed, according to a recent analysis of data from the 1965-66 Nationwide Household Food Consumption Survey. Of the families who used as little as \$3 to \$5 worth of food per person in a week, only 5 percent had diets rated good. Good diets met the Recommended Dietary Allowances (RDA) set by the National Academy of Sciences-National Research Council for the nutrients studied. By comparison, diets were good for 21 percent of the households using food valued from \$5 to \$7 per person, and for 42 percent of those spending \$7 to \$9. Conversely, 65 percent of the families using only \$3 to \$5 worth of food per person in a week had poor diets, as compared with 33 percent of those spending \$5 to \$7 and 16 percent of those spending \$7 to \$9. (Diets rated poor met less than two-thirds of the RDA's for one or more nutrients.) These findings constitute a basis for policy decisions on programs for improving the quality of diets and determining allotments to families who receive public or private assistance.

Seasonal variation in diet quality. Seasonal variation in diet quality is greater among households with yearly incomes under \$3,000 than at higher income levels. In the low-income group, diets of farm families show greater seasonal variation in quality than diets of urban families. The farm diets also tend to be of better quality. Among low-income farm families, the percentage having good diets ranged from a high of 55 percent in summer to a low of 38 percent in spring. For low-income urban families the proportion with good diets was lowest in the summer, 34 percent, and highest in the fall, 42 percent. These differences reflect the greater availability of home-produced fruits and vegetables

THE COST OF RAISING A CHILD TO AGE 18 IN THE SOUTH

At comparable levels of living, costs for farm child are sometimes higher, and never substantially less than for urban child



to farm families in the summer. The findings are from analyses of data from the 1965-66 Nationwide Food Consumption Survey, the first to span all seasons of the year. This information on seasonal variation in diet quality will assist nutrition aides and others who are engaged in programs to improve the dietary situation of low-income families.

New and improved data on nutritive value of foods. The Division's publication for consumers on nutritive value of foods has been revised and updated to include more of the products on the retail market today. The revised publication includes 615 food items, many of which are new ready-to-eat foods. Values are given for calories, protein, fat, total saturated fatty acids, oleic acid, linoleic acid, total carbohydrate, calcium, iron and five vitamins--vitamin A value, thiamin, riboflavin, niacin, and ascorbic acid. Values are in terms of common household measures such as 1 cupful, a package of stated size, or other generally recognized unit. The quantitative information provided in the publication helps homemakers and dietitians plan nutritionally adequate diets and aids physicians and nurses in advising patients. In addition, as our food technology advances, these values will form the basis for establishing nutrient levels for new processed and formulated foods. More than a million copies of the publication have been distributed since 1960 when the first edition was issued. The nutritive data are also available on punch cards and tapes for use by institutions such as universities and hospitals in food research programs and computerized menu planning.

FOOD CHOICES, HABITS, CONSUMPTION AND USE

Problems and Objectives

Information about food consumption and dietary levels is essential to effective consumer education in nutrition and food management, to market analyses, and to agricultural policy and program evaluations--both to provide the basis for such evaluations and to measure progress. Needed are periodic surveys of the kinds, amounts, and costs of food consumed by households and individuals in different population groups; surveys of practices of families in the purchase and use of specific foods; studies of factors affecting food choices; nutritional appraisals of diets and food supplies; and studies to develop procedures that maintain nutrient content, texture, flavor, safety and other qualities during preparation and care of food. To facilitate improvement of the dietary situation, more effective ways of informing people about food and nutrition and of helping them improve their food habits are needed.

Major objectives of the research are to determine--

1. Food consumption patterns of the Nation and of specific population groups.
2. Nutritive value of diets and of the per capita food supply.
3. Household practices in food management.

4. Basis of food habits and how they can be changed.
5. Methods for educating consumers about nutrition and food management.
6. New or improved procedures for preparing and handling food in homes and institutions.

Progress

Food Consumption and Dietary Levels

Diets of households by season and money value of food. Analysis of data from the 1965-66 Nationwide Household Food Consumption Survey showed that food consumed at home by households in spring was more representative of average consumption during the year than was the food consumed during other seasons. As might be expected, the major seasonal shifts were in home-produced foods, especially vegetables.

Tabulations of the spring 1965 dietary data by level of money value per household member revealed that among households spending \$9 to \$12 a week (just above the average for the United States) 65 percent had good diets--i.e., their diets met the Recommended Dietary Allowances for food energy and the seven nutrients studied. Seven percent had diets that failed to meet two-thirds of the RDA for one or more of these nutrients and were said to have poor diets. Families with good diets allocated a larger portion of their food dollars to vegetables, fruits, milk, and grain products than did those with poor diets.

The per person money value of food at home varied from \$10.68 in two-person households to \$7.40 in six-person households. Expenditures for food away from home were only slightly less for small households than for larger ones.

Food consumption of rural Negro families. Data were collected during home interviews on the food consumption and food expenditures of a representative sample of 480 rural, low-income Negro families in Bolivar, LeFlora, and Tallahatchie Counties, Mississippi. Analysis of the data will provide information on the dietary levels of the households as related to socioeconomic factors and employment status. This information will help in determining what increased educational efforts and practical food-related programs are most needed for improvement of diets of the rural, low-income Negro families.

Methods of collecting data. A study is underway of three methods of collecting household food consumption data--record keeping, recall and recall with structured memory aid. Preliminary analysis of the data suggests that the record keeping method is unsuitable for a nationwide household food consumption survey.

Nutritive Value of National Food Supply

The ascorbic acid content of the national food supply was 2 percent higher in 1969 than in 1968, chiefly because of increased use of fresh citrus fruits. The fat content was 2 percent higher in 1969 than in 1967 because of increased use of meats and of fats and oils. During the same period, decreased use of fluid whole milk and most manufactured milk products other than cheese resulted

in a 2-percent drop in calcium. Except for the mid-40's, iron was at its highest level in 1968-69. Meat, poultry, fish and grain products accounted for about 60 percent of the iron. Beef alone accounted for 15 percent and pork accounted for 7 percent.

In 1967-69, magnesium levels remained fairly steady at about 340 milligrams per capita per day. Dairy products provided 22 percent of this; grain products, 18 percent; fruits, vegetables, potatoes-sweetpotatoes, 26 percent; and meat, poultry and fish, 13 percent. The level of magnesium was 2 percent lower in 1967-69 than in 1957-59, chiefly because of less use of dairy products and flour and cereal products.

The vitamin B₆ content of the per capita food supply was 6 percent higher in 1969 than in 1957-59. This increase resulted from use of more animal products, chiefly meat and poultry. The meat, poultry, and fish group contributed about 46 percent of the total vitamin B₆ in 1969 compared to 40 percent in 1957-59. Although total animal products provide the largest share of this vitamin, vegetable sources are also important. In 1969, vegetables, fruits and potatoes contributed about 31 percent of the total. Flour and cereal products contributed about 7 percent.

The amount of vitamin B₁₂ in the food supply was 4 percent greater in 1969 than in 1957-59. Meat, poultry and fish accounted for about 70 percent of the total; dairy products, 20 percent; and eggs, the balance.

Food Acceptance and Food Habits

The acceptance of foods offered in school lunches by tenth grade students in 16 Louisiana schools representing both urban and rural areas and large and small populations was investigated under cooperative agreement with Louisiana State University. Some of the schools offered a single menu and some offered a choice. Participation in the lunch program was found to be slightly higher in schools offering a choice of menu. Foods served at home were liked better than the same ones served at school. Vegetables and salads were the least liked foods, regardless of where they were served. Parents and school administrators were included in the survey also. Eighty-six percent of the parents who returned the questionnaires stated that they wanted their children to eat the school lunch.

A study was initiated under contract to find out what reasons are behind the refusal of some students to eat fruits and vegetables. The information obtained will be used to develop recommendations for upgrading the nutritional quality and acceptance of the school lunch and other food assistance programs.

Research is underway to identify the food habits of low-income families in Kansas City, Kansas, and to relate the life styles of these families to their food consumption patterns. In Milwaukee, Wisconsin, households from the central city, the outer city and suburban areas are being surveyed to identify conditions, situations and associations that influence food acceptance and consumption and to relate the individual's food habits and attitudes to those which characterize the household to which he belongs. These studies are being carried out under research grants at Kansas University Medical School and the University of Wisconsin at Milwaukee.

Nutrition Programs Service

Assistance was provided to six States in the development of nutrition education programs and the organization of nutrition committees. Coordination of nutrition activities was promoted by presentation of 16 talks to professional groups, and eight 10-minute and nine 3-minute television shows and nine 3-minute-10-second radio shows designed to bring information on nutrition to the public. The TV and radio programs were taped and distributed nationally.

Bimonthly publication of Nutrition Program News continued. Topics covered in the seven issues printed during the reporting period are given in the list of publications on page 9.

Food Use

Homes and institutions. A wide variety of information on using foods in the home was provided by publications issued during the reporting period. One Home and Garden Bulletin features tasty, nourishing, money-saving main dishes, including economical meats, poultry, and fish and combinations of foods for casseroles, salads, sandwiches, soups and stews. Two Home and Garden Bulletins give information on how to select, store, and use apples and nuts in family meals.

A Home Economics Research Report gives information to aid the consumer in buying food for her family, with special help in calculating amounts of food to buy and in comparing food costs. Six hundred entries provide information on different market forms of 200 foods prepared in various ways.

Five chapters in "Food for Us All," the 1969 Yearbook of Agriculture, give information on purchasing, home storage and family use of meat, milk and other dairy products, vegetables, fruit, and nuts. Recipes for foods with a regional or foreign accent are featured to encourage homemakers to vary the ways they prepare common foods for their families.

Low-income families. Twenty-four leaflets in the Food for Thrifty Families series were developed, revised or enlarged in cooperation with the Food and Nutrition Service. Also, general information was formulated and recipes were developed on special foods for package labels and fact sheets. A slide script was developed on the use of donated nonfat dry milk (noninstant) and assistance was given in developing three Industry-USDA slide scripts, two on dairy products and one on citrus fruits. Simplicity is characteristic of all of these materials. The recipes have limited kinds and numbers of ingredients, involve easy-to-use measures and simple procedures and require little kitchen equipment. Studies in one Southeastern and two Southwestern States are providing information on the acceptance of recipes in the Food for Thrifty Families series by low-income families.

National school lunch program. The 1970 revision of "Quantity Recipes for Type A School Lunches" was completed and is in press. To aid school lunch managers and others write more uniform recipes for school lunch use, a publication was developed on "Guides for Writing Quantity Recipes for Type A School Lunches." Quantity recipes submitted as "favorites" by school lunch managers were standardized and distributed to selected schools for acceptance tests.

Publications

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Dietary Levels of Households in the United States, Spring 1965, Report No. 6, ARS, USDA, 117 pages. July 1969.

Dietary Levels of Households in the Northeast, Spring 1965, Report No. 7, ARS, USDA, 117 pages. January 1970.

Dietary Levels of Households in the North Central Region, Spring 1965, Report No. 8, ARS, USDA, 117 pages. February 1970.

Salt Purchases by Families. Family Economics Review, ARS 62-5, USDA, p. 12. December 1969.

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- HILL, M. M. Creating Good Food Habits--Start Young, Never Quit. Food For Us All, U.S. Dept. Agr. Yearb. 1969:260-265.
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- WENKAM, N. S. Cultural Determinants of Nutritional Behavior. Nutrition Program News, ARS, USDA, pp. 1-4. July-Aug. 1969.

Nutrition Programs Service

- Consumer and Food Economics Research Division, ARS, USDA. 1969-70. Nutrition Program News, seven issues--May-June 1969; July-Aug. 1969; Nov.-Dec. 1969; Jan.-Feb. 1970; March-Apr. 1970; May-June 1970. 4 pp. each. Sept.-Oct 1969. 8 pp.
- FINCHER, L. J. and RAUSCHERT, M. E. Diets of Men, Women and Children in the United States. Nutrition Program News, ARS, USDA, pp. 1-6. Sept.-Oct. 1969.
- HILL, M. M. The School Lunch--A Component of Educational Programs. Nutrition Program News, ARS, USDA, pp. 1-4. Nov.-Dec. 1969.
- HILL, M. M. Helping People to Help Themselves--Extension Aide Program. Nutrition Program News, ARS, USDA, pp. 1-4. March-Apr. 1970.
- HILL, M. M. Nutrition Education--An Integral Part of Consumer Education. Nutrition Program News, ARS, USDA, pp. 1-4. May-June 1970.
- JUHAS, L. Nutrition Education--An Integral Part of a School Feeding Program. Nutrition Program News, ARS, USDA, pp. 1-4. May-June 1969.
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- WOLGAMOT, I. H. Helping Older Persons Meet Their Nutritional Needs. Nutrition Program News, ARS, USDA, pp. 1-4. Jan.-Feb. 1970.

Food Use

- Family Fare...A Guide to Good Nutrition. HG-1. ARS, USDA, 91 pp. Rev. May 1970.
- Money-saving Main Dishes. HG-43. ARS, USDA, 48 pp. Rev. Dec. 1969.
- Apples in Appealing Ways. HG-161. ARS, USDA, 16 pp. Apr. 1969.

Nuts in Family Meals: A Guide for Consumers. HG-176. ARS, USDA, 14 pp.
May 1970.

The 'Basic Four' Ways to Good Meals. Number 1 in the Food Makes the Difference Series. Narrative Guide for Slide Set and Filmstrip Presentation. C-158.
C&MS (CFE cooperating), USDA, 44 pp. 1969.

Milk the Magnificent. Number 2 in the Food Makes the Difference Series. Narrative Guide for Color Slide Series and Filmstrip Presentation. C-161.
C&MS (CFE cooperating), USDA, 44 pp. 1969.

Milk Basic to Good Nutrition. Number 3 in the Food Makes the Difference Series. Narrative Guide for Color Slide Set and Filmstrip Presentation. C-162.
C&MS (CFE cooperating), USDA, 44 pp. 1970.

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FOOD COMPOSITION, FOOD BUDGETS AND GUIDANCE FOR FOOD PROGRAMS

Problems and Objectives

An increasing number of studies designed to provide knowledge about the relationship of food eaten by people to their physical and mental development and well-being are reported in the literature. Interpretation and evaluation of the findings and guidance in applying those with implications for food and nutrition programs are of vital importance if people are to obtain the greatest benefits from this research. Developments in cultural, breeding, and manufacturing practices introduce new food products and changes in the composition of others. The number of nutrients recognized as important continues to increase. Representative nutritive values that reflect these developments as well as the latest developments in analytical techniques are required for application in a variety of problems. Source materials such as food budgets and dietary guides based on advancing knowledge are needed for use in nutrition and consumer programs.

Major objectives of the research include:

1. Development of representative nutritive values for all types of foods.
2. Development of food guides and food budgets.
3. Review and interpretation of research findings on food and nutrition for application to and evaluation of action programs such as child feeding and commodity distribution to needy families.

Progress

Tables of Food Composition

Work to obtain data for the Division's tables of food composition is continuing along several lines. Data on (1) the amino acid content of fruits and vegetables and (2) the relationships among nutrients in milk, selected cheeses, and other milk products are being summarized in preparation for publication. Research has been initiated under contract to determine the content of mineral elements, proximate composition, and yields of chicken and chicken parts and dry legumes, before and after cooking.

A completely revised edition of HG-72, "Nutritive Value of Foods," is in press. It includes 615 food items, many of them new ready-to-eat foods. Values are given for calories, protein, fat, total saturated fatty acids, oleic acid, linoleic acid, total carbohydrate, calcium, iron and five vitamins--vitamin A value, thiamin, riboflavin, niacin, and ascorbic acid. Values are in terms of common household measures such as 1 cupful or other generally recognized units.

Representative nutritive values for 56 food items which had been offered to needy families under the Commodity Distribution Program through February 1970

and for two formulated foods--CSM (corn-soya-milk) and WSB (wheat-soy blend) developed as food supplements for use in overseas child feeding programs--will be published in the Journal of the American Dietetic Association. Values are given for all nutrients, except iodine, for which RDA's have been set and for other nutrients for which information is frequently requested--total carbohydrate, fat, sodium, potassium and, in the case of scrambled egg mix, cholesterol. Values for selected fatty acids are given for foods containing more than 2 percent total fat.

Nutritive Value of Meals as Served

Type A school lunch. The 20-lunch composites obtained in the fall of 1966 from each of 300 schools located in 19 States and five geographic regions were analyzed for 15 mineral elements. The average number of milligrams per lunch was 455 for calcium, 518 for phosphorus, 93 for magnesium, 4.2 for iron, 1,466 for sodium and 1,190 for potassium. Calcium and phosphorus in the lunches exceeded the nutritional goal of 400 milligrams, which is one-third of the Recommended Dietary Allowance. Magnesium was below the goal of 100 milligrams. Iron fell below the goal of 4.5 milligrams for girls but exceeded the goal of 3.3 milligrams for boys. On the average, the lunches contained 0.019 milligrams chromium, 0.34 milligrams copper, 0.45 milligrams manganese and 3.91 milligrams zinc. These amounts were probably adequate for zinc, possibly adequate for manganese, and probably low for chromium and copper. The lunches also averaged 8.26 milligrams aluminum, 0.17 milligrams barium, 0.50 milligrams boron, 0.013 milligrams cadmium and 0.33 milligrams strontium.

Simple correlation coefficients showed significant relationships between caloric value of the lunches and the content of 13 mineral elements and between protein content and 10 mineral elements.

Two papers, one on the content of major mineral elements in Type A school lunches and one on the content of trace mineral elements are in press. A paper on regional variations in vitamin and trace element content of Type A school lunches was presented at the Fourth Annual Conference on Trace Substances in Environmental Health, University of Missouri, Columbia, in June 1970.

Food Budgets and Guidance for Food Programs

The U.S. average cost for the low-cost food plan for a family of four with school children increased 6.9 percent from March 1969 (\$28.80 a week) to March 1970 (\$30.80). The cost for the economy plan, used as a basis for allotments in the Food Stamp Program, was \$24.60 a week or \$107 a month, in March 1970.

Special reports concerning food costs with respect to nutritional quality of diets were prepared for the Select Committee on Nutrition and Human Needs of the United States Senate and for an Interagency Task Force of the Bureau of the Budget for Analysis of Food Assistance Programs. Analyses of data from the Nationwide Household Food Consumption Survey of spring 1965 show that three out of 10 families using food valued at the cost of the low-cost plan would be expected to have good diets (meet Recommended Dietary Allowances), and six out of 10 might have diets that are fair or better (provide at least two-thirds RDA). Only one out of 10 families using food valued at the cost of the economy plan would

be expected to have good diets, but as many as five out of 10 might have diets that are fair or better.

Costs of the food plans and data on food costs for households in the nationwide survey were the basis for a talk on "Family Food Costs" presented at the winter 1969 meeting of the American Association for the Advancement of Science.

The contents of magnesium, vitamin B₆ and vitamin B₁₂ in the food plans at four cost levels were estimated. In general, the plans for children and youth at the four cost levels provided the Recommended Dietary Allowances for these nutrients which were set by the Food and Nutrition Board (FNB) for the first time in 1968. For adults, plans at all cost levels except for economy level, provided two-thirds or more of the allowances for magnesium, vitamin B₆ and vitamin B₁₂. For persons over 55 years, the economy plan provided as little as one-half of the allowances for vitamin B₆ and B₁₂. Because food composition data for these nutrients are limited and their allowances are considered provisional by the FNB, no revision in the food plans was made at this time to increase the levels of these nutrients.

Diets of boys, girls, men and women in different age groups, as revealed by the Division's Nationwide Food Consumption Survey, were compared with the Daily Food Guide. None of the groups of individuals had diets that supplied the minimum number of servings of specified size recommended for all four food groups. Diets of all groups of individuals were short in foods from the milk group. Many were short in vegetables and fruits. All appeared to exceed the guide's recommendations for bread and cereals and for the meat group. These findings are helpful in showing where emphasis is needed in giving dietary guidance.

The nutritive value of foods offered and the foods actually distributed to States in June 1970 under the Commodity Distribution Program for needy families were estimated and compared with the Recommended Dietary Allowances for food energy, protein, calcium, iron, vitamin A, thiamin, riboflavin, and vitamin C. The 26 foods in the package for needy families in the amounts offered the States provided over 100 percent of the RDA's except for food energy (82 percent). The foods in amounts actually distributed provided 100 percent or more of the RDA's for protein and thiamin. The proportion for iron and riboflavin was 91 percent; for vitamin A, 87 percent; for calcium, 73 percent; for vitamin C, 90 percent; and for food energy, 60 percent.

As a follow-up of the study of the nutritive value of Type A school lunches as served, a method for planning menus that would safeguard the nutritional quality of the lunch was tested in a number of schools in the greater Washington area. These tests showed that a major difficulty in providing children with lunches that approach or reach nutritional goals is the lack of acceptance by children of certain foods, particularly vegetables and fruits.

Publications

Tables of Food Composition

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Nutritive Value of Meals as Served

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Food Budgets and Food Guides

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USE OF FAMILY RESOURCES

Problems and Objectives

Information on the resources available to families, the decisions families make regarding their use and the levels of living provided are needed to develop programs to improve levels of living.

Major objectives of the research are to--

1. Determine the effects of economic and psychosociological factors on the allocation of family resources.
2. Identify the family financial management patterns that are associated with desirable levels of living.
3. Identify the levels of living obtainable in different socioeconomic situations.

Progress

Rural Family Living Studies

Economic status. Nearing completion is research to develop an index that measures the value of current consumption of rural families and thus is a better indicator of their economic status than is current income. The questionnaire, which was administered to a representative sample of farm and rural nonfarm families in North Carolina, included 168 questions selected as possible indicators of level of living. These were in addition to the conventional questions needed to calculate the value of current consumption. From the 168 questions, 50 were selected which appear to have the greatest ability to predict the value of consumption. Indications are that fewer than 20 questions will constitute a reasonably satisfactory index of economic status. The research is being done under contract at the Research Triangle Institute.

Byproducts of the research are data on expenditures for goods and services used in family living, and on value of consumption, which includes the use value of durables and the value of some goods and services not purchased. In 1967, rural North Carolina families spent an average of \$4,414 for goods and services. Their value of consumption was \$4,659, 6 percent higher than expenditures.

Value of consumption showed less income elasticity than expenditures. Among families with after-tax-incomes below \$1,500, value of consumption exceeded expenditures by 22 percent. Moving up the income scale, expenditures increased faster than value of consumption, and at the level \$8,000 and over, value of consumption was 4 percent less than expenditures.

Value of consumption also showed less elasticity than expenditures over the range of family size but was greater than expenditures in all family size intervals. On the average, but not at low-income levels or among small families

(both groups contain relatively high proportions of the elderly), families added to their stocks of durables during the year. Home-produced food added \$142 to the value of family living.

Further analysis of the data is being carried out under cooperative agreement with North Carolina Agricultural and Technical State University. Information will be developed on the incomes, expenditures and consumption of rural North Carolina families for use by workers in extension and other programs designed to raise the level of living of rural families in the State and similar areas.

Ability to adapt to rural-urban migration. Under a research grant, Southern Methodist University is determining the predictive value of psychological factors in identifying ability of families to adapt to rural-urban migration. Attitudes toward risk-taking, openness to or fear of change, ability to defer gratification and inhibit impulse, and flexibility are among the factors included in the study.

Management of Family Resources

Use of credit. In a study of family decision-making in the use of consumer credit, which is being carried out under cooperative agreement with Oklahoma State University, data have been collected from 365 husband-wife families in which the husband was under 45 years old. About 4 out of 5 of these made payments on consumer debts between July 1, 1968, and June 30, 1969. The average amount paid was \$634 for all families and \$806 for those making payments. About 30 percent paid 10 to 19 percent of their after-tax incomes on debts and 12 percent paid 20 percent or more. Fifty-eight percent of the families surveyed made one or more credit transactions of \$100 or more during the survey year. Almost 60 percent of these made only one credit transaction, 25 percent two, and 15 percent three or more. Of the families making only one transaction, about 56 percent used loans, 40 percent the installment purchase plan, and 4 percent charge accounts. Families making more than one transaction most often used a combination of loan and installment purchase plans. Loans were more often from banks than from other sources. Few families knew the interest rate charged on the debts they assumed during the year.

Cost of raising a child. Estimates of the cost of raising a child to age 18 at low and moderate levels of living were developed for a child in urban and farm families with two, three, four, and five children in the North Central region and the South. The costs vary with the family size as well as with the level of living and the place of residence, decreasing as family size increases. Costs in five-child families average 20 to 24 percent below costs in two-child families. Cost differences between two- and three-child families and three- and four-child families range between 7 and 12 percent. Between the four- and five-child families, costs decrease only 4 or 5 percent (see additional information on page 2).

Time used for household tasks. Further analysis of data obtained from 1,300 families in Syracuse and Onondaga County, N.Y., in 1967-68 showed that time spent by husbands on household work averaged 1.6 hours a day, whether or not the wife was employed. More than 30 minutes of this time was spent on house maintenance and yard care, 25 minutes on marketing and record-keeping and 20 minutes on family care--mainly helping children with lessons and chauffeuring

them. On the average, each child contributed just over 1 hour per day to household tasks whether or not the mother was employed. Families in which the youngest child was of school age received close to 2 hours of help from children. The number of hours of help contributed by children increased as the family size increased. This research was carried out under a grant at Cornell University.

Clothing Acquisition

"Minimum decency" clothing budgets designed for families of a husband about 34 years of age, a wife about 30 and two children have resulted from a cooperative agreement with Iowa State University. The budgets are based on the clothing practices of families with pretax incomes of \$3,000-\$5,000 in 1966, and list the acquisitions and inventories needed by 15 sex-age-activity classes of persons.

The annual costs of purchases for some of these groups are: Male blue-collar worker, \$108; wife of a male head, \$108; female head of family, \$191; 10-to-13-year-old boy, \$91; 6-to-9-year-old boy, \$56; 2-to-5-year-old boy, \$57; 10-to-13-year-old girl, \$103; 6-to-9-year-old girl, \$83; 2-to-5-year-old girl, \$50; any child 1-2 years old, \$48; any child under 1 year, \$33. The budgets will maintain an inventory that included, among other items, for blue-collar male workers, one heavy coat, one light coat or raincoat, two heavy jackets, one pair of work shoes and two pairs of dress or street shoes, and, for the wife of a male head, two heavy coats, one light coat or raincoat, one outdoor jacket, five street dresses, and three pairs of street or dress shoes.

Garments from supplementary sources constituted an important source of clothing, varying from 20 percent of the annual acquisitions for male blue-collar workers to 72 percent for boys 2 to 5 years of age. These garments did not substitute for garments purchased new in a 1:1 ratio.

Family Economics Review and Outlook Conference

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